

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application:

- 1 1. (Currently Amended) A proximity detector, comprising:
  - 2 a magnetic-field-to-voltage transducer for providing a magnetic field signal indicative of
  - 3 an ambient magnetic field;
  - 4 a peak detector responsive to said magnetic field signal for providing a tracking signal
  - 5 which substantially follows at least a portion of said magnetic field signal, wherein said peak
  - 6 detector comprises:
    - 7 a first digital-to-analog converter for providing a first output signal having a first
    - 8 step size;
    - 9 a second digital-to-analog converter for providing a second output signal having a
    - 10 second step size larger than said first step size; and
    - 11 a summation circuit coupled to said first and said second digital-to-analog
    - 12 converters for providing said tracking signal as a sum of said first and said second output
    - 13 signals, wherein said tracking signal is controlled to include steps associated with the first
    - 14 step size when said magnetic field signal varies from said tracking signal by less than a
    - 15 predetermined amount and to include larger steps associated with the second step size
    - 16 when said magnetic field signal varies from said tracking signal by more than the
    - 17 predetermined amount.
- 1 2. (Currently Amended) The proximity detector of Claim 1, further including a too-far-behind
- 2 comparator for providing a too-far-behind signal which changes state when said magnetic field
- 3 signal varies from said tracking signal by ~~a~~the predetermined amount, wherein said tracking
- 4 signal is controlled in response to said too-far-behind signal to include steps associated with the
- 5 first step size when the too-far-behind signal is in a first state and to include larger steps
- 6 associated with the second step size when the too-far-behind signal is in a second state.

1       3. (Original) The proximity detector of Claim 2, wherein said peak detector further comprises:  
2              a first counter for providing a first count signal to said first digital-to-analog converter;  
3          and  
4              a second counter for providing a second count signal to said second digital-to-analog  
5          converter.

1       4. (Previously Presented) The proximity detector of Claim 3, wherein in response to the first  
2          state of said too-far-behind signal said second counter is stepped in association with a terminal  
3          count of said first counter, and in response to the second state of said too-far-behind signal said  
4          second counter is also stepped.

1       5. (Original) The proximity detector of Claim 2, wherein said too-far-behind comparator is  
2          responsive to an offset signal that differs from said magnetic field signal by an offset amount.

1       6. (Currently Amended) The proximity detector of Claim 1, further including a POSCOMP  
2          comparator for providing a POSCOMP signal, which changes state when said magnetic field  
3          signal varies from said tracking signal by a second predetermined amount, wherein at least one  
4          of said tracking signal or said magnetic field signal is forced towards the other one of said  
5          tracking signal or said magnetic field signal in response to changes in state of said POSCOMP  
6          signal.

1       7. (Currently Amended) The proximity detector of Claim 6, wherein said POSCOMP  
2          comparator is responsive to a threshold signal that differs from said tracking signal by the  
3          seconda predetermined amount.

1       8. (Original) The proximity detector of Claim 6, wherein said tracking signal is brought to  
2          substantially the same level as said magnetic field signal in response to changes in state of said  
3          POSCOMP signal.

1       9-19. (Canceled)